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Reply To: 3420

Date: JUL 21 1988

Subject: Biological Evaluation of Stand 314-41, Edson Timber Sale, Georgetown Ranger District (Report No. 88-16)

To: Forest Supervisor, Eldorado National Forest

On July 5, 1988, Gregg DeNitto and Susan Frankel, plant pathologists, Forest Pest Management, visited stand 314-41 in the planned Edson timber sale (T. 12 N., R. 13 E., sections 3 and 4). They were accompanied by Bill Cox and Pat Clark, Georgetown Ranger District. The purpose of the evaluation was to determine what pests were present and how the proposed silvicultural prescription may be affected by their presence.

Stand 314-41 is an 80-year-old mixed conifer stand on a Dunning site 1A. It is primarily ponderosa pine and white fir with a small component of Douglas-fir and incense-cedar. Average basal area is 280 sq. ft./ac. The stand is approximately 7 acres in size along Road 14N08. The visual management objective for the stand is partial retention and it is not part of the regulated timber base. The silvicultural prescription for this stand is for a commercial thinning. This thinning would be from below and would remove a higher proportion of white fir. Approximately 50 sq. ft./ac. basal area with a gross volume of 5 mbf/ac. would be harvested.

The principal pest organism observed was Heterobasidion annosum, the cause of annosus root disease. Conks of this fungus were found within the stand in old white fir stumps. Root decay in some white fir was also typical of annosus root disease. In an adjoining ponderosa pine plantation some seedling mortality was observed. Although poor planting practices were involved in the mortality, evidence of anosus root disease was also identified on seedling roots.

Two pest management questions were asked about this stand in relation to the proposed prescription. What will be the residual effect of annosus root disease and other pests following harvesting? Is there a need to treat stumps with borax following harvesting to prevent additional infections?

The primary concern with annosus root disease in white fir is root and butt decay and the increased potential for windthrow. When trees are removed in a partial harvest, residual trees are exposed to new wind forces and may be more susceptible to windthrow because of the loss of support from surrounding trees. Adding root decay to this may increase the chance for windthrow of residual trees.

The planned harvest will be removing about 70 trees per acre with an average dbh of 12 inches. This is about 25% of the stems, the majority of which will be in the smaller size classes. It is anticipated that this limited tree removal from below will not have a significant effect on the windfirmness of most leave trees, even if they are infected by H. annosum. A few trees may be lost, but the number should be small. This assumes that logging damage is at or below normal levels.

The second question is whether to borax stumps. At present, we believe there are two strains of H. annosum, one affecting pine species and the other involving true firs. These strains appear to function differently in their respective hosts. The pine strain is a more aggressive pathogen resulting in tree mortality, whereas the fir strain often causes a root and butt decay, but is slow in causing mortality.

Pine seedling mortality from H. annosum was observed in an adjoining plantation which resulted from harvesting activity with no stump treatment. Similar pine stump infection is expected in this area during any future activity. Therefore, treatment of pine stumps is an advisable activity in future harvests in this area.

White fir stumps will also be infected following harvesting. In addition, wounds on the lower bole and roots of white fir leave trees may be infected. The number of trees which will be harvested that are already infected by the fungus is unknown. As previously stated, the aggressiveness of the fungus in true firs is less than in pines. Because of these reasons, FPM does not recommend for or against the use of borax in true fir. Its use will certainly reduce the number of new infections. The benefit of this reduction is unknown. The value of this stand from a visuals perspective may argue for taking actions to minimize any future losses. Because of stand age and what appears to be an already high level of annosus root disease in the white fir, any benefits of treatment may be limited. However, from a sale administration viewpoint, it may be simpler to treat all conifer stumps if pine stumps will be treated since there is generally little additional costs involved.

If there are any questions about this evaluation, please contact John Pronos or John Wenz at the FPM South Sierra Area (209-532-3671).

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